County of Fairfax, Virginia

MEMORANDUM

DATE: February 25, January 16, 2019
TO: David Evans, Nonpoint Source Coordinator, VA DEQ.
FROM: Martin Hurd, MS4 Program Specialist, Fairfax County, VA.
SUBJECT: SaMS Tracking and Reporting Workgroup Action Item

Mr. Evans,

The purpose of this memo is to provide the response to the action item assigned during the Salt Tracking & Reporting Workgroup Meeting that was held on October 16, 2018. That action item was to:

"*Reach out to members of Fairfax County's Emergency Response and Snow Team to learn what metrics they currently track when they activate for a storm; how they determine storm severity, prioritize areas to treat, and triggers for application of different anti- or de-icing materials.*"

1. Events and Activation Tracking

Department of Public Works Emergency Management Staff track events on a fiscal year basis. The following elements are currently tracked for events:

1. Event Number
2. Date
3. Duration (in days)
4. Response Type (Rain, Snow, Ice, Snow/Ice, Rain/Flooding)
5. Activation Level (Department Operations Center (DOC) Activation or Stormwater response)

2. Storm Severity

County Staff coordinate with multiple agencies in the National Capital Region, including the Washington Metropolitan Council of Governments, National Oceanic and Atmospheric Administration (NOAA), National Weather Service (NWS), and state and local partners. Coordination occurs on an annual basis for snow season regional preparedness purposes, and prior to forecasted events to determine an appropriate mobilization response.

When mobilizing, the county classifies five different types of storms:

1. Light snow
2. Moderate to heavy snow
3. Freezing rain
4. Sleet
5. Thaw and refreeze

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Stormwater Planning Division
12000 Government Center Parkway, Suite 449
Fairfax, VA 22035-0052
Phone: 703-324-5500, TTY 711, Fax: 703-802-5955
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For ice events, the decision to pre-treat depends on the timing and type of event. If the event is forecast to begin during opening or closing hours of the county facilities, crews may pre-treat surfaces to enhance travel safety while the event develops. Pavement is re-treated as needed for the duration of the event.

If weather forecasts and observed conditions are suitable, pre-treatment of roadways and parking lots with brine may be warranted. Brine is not applied if precipitation starts out as rain or freezes before turning into snow. Benefits of applying brine to the pavement before snow or ice has bonded can be ten times more effective than placing salt crystals on the top of the snow and ice after the precipitation has bonded to the pavement.

3. Prioritization of Treatment Areas

On an annual basis, the county reviews and updates a documented list of sites prioritized for snow removal, each with associated level of service expectations for different sized storm events. Sites are also classified by treatment type (Plow only, Shovel only, Both, None).

Prioritization Level	Facility or Site Type
Priority 1	Police Stations / Government Centers Fire Stations Fairfax County Schools Emergency Services Senior Housing, Assisted Living, and Specialized Housing Public Safety Centers Mass Transit Facilities
Priority 2	Health Centers / 24-hr Shelters, & other essential Facilities
Priority 3	Libraries Community Centers Fairfax County Parks Other (Fire Training Academy, Police Training Academy, etc.)
Priority 4	County & Developer Default Roads

Walkways at each site have an additional level of prioritization for clearing:

Clearing Phase	Walkway Type
Phase 1	Handicapped Parking Accessible Routes
Phase 2	Main on-site walkways
Phase 3	Non-critical on-site walks Adjacent Right of Way (ROW) sidewalks

When mobilized, snow removal teams reference the following expected levels of service for sites (by prioritization level and storm severity):

Prioritization Level	Snow (0 to 2 inches) (duration after storm ends)	Snow (2 to 6 inches) (duration after storm ends)	Snow (6 to 9 inches) (duration after storm ends)	Ice & Freezing Rain (duration after storm ends)
Priority 1	Up to 6 hours	Up to 12 hours	Up to 18 to 24 hours	Up to 8 hours
Priority 2	Up to 12 hours	Up to 18 hours	Up to 24 hours	Up to 12 hours
Priority 3	Up to 12 hours	Up to 12 to 18 hours	Up to 1 day to 2 days	Up to 12 to 18 hours
Priority 4	Up to 1 day	Up to 1 to 2 days	Up to 2 to 3 days	Up to 1 day

4. Level of Response

For roadway and parking lot applications, response for each event takes into consideration actual field conditions, the forecast, and the following air temperature ranges and application guidelines:

Conditions	Guidelines
Above 32°F steady or rising:	Deicing materials are generally not applied except for very light applications primarily in shaded areas to encourage rapid melting and drying.
Above 32°F, 32°F or below is imminent:	Deicing materials are applied lightly to encourage melting.
25°F to 32°F remaining in range:	Deicing materials are applied moderately to encourage more rapid melting.
15°F to 25°F remaining in range:	Deicing materials are applied more aggressively in an effort to keep snow in a wet, slushy, plowable condition.
Below 15°F steady or falling:	Deicing materials would generally not be applied but since some formulations are pre-mixed with sand they are applied minimally for traction purposes only.

5. Anti- and Deicing Material Usage

The county uses the following materials for anti- and deicing purposes:

Material	Generalized usage
100% Rock Salt (Sodium Chloride)	Used primarily on county and commuter facility roadways and lots.
50% Rock Salt / 50% Class "B" Sand	Fairfax County Public Schools (FCPS) and Fairfax County Park Authority (FCPA) prefer this mixture after experimenting with other deicers over several years. It has provided a satisfactory level of melting and traction while reducing the quantity of sand applied. May also be used on other facility walkways, and when temperatures drop below 20^{o}F, on other county facility parking lots.
100% Calcium Magnesium Acetate (CMA)	Used on certain parking garage structures and facility walkways because it is non-corrosive to steel.
Magnesium Chloride	May be used on certain facility walkways.
Inorganic Salt Mixture (sodium, magnesium, potassium, and calcium chloride)	May be used on certain facility walkways.
Clean Mason Sand	May be used on certain county school facilities to provide additional traction.
23.5% Salt (Sodium Chloride) Brine Solution	Pretreatment applications for anti-icing purposes.

County operations prohibit the application of deicing agents containing urea or other forms of nitrogen or phosphorus to parking lots, roadways, and sidewalks or other paved surfaces.